Commonwealth of Kentucky
Division for Air Quality

RESPONSE TO COMMENTS

ON THE TITLE V DRAFT PERMIT V-05-057
The Somerset Refinery, Inc.
501 Refinery Road
Somerset, KY 42501
August 3, 2006
Ralph Gosney, P.E., Reviewer

SOURCE I.D. #:	21-199-00010
SOURCE A.I. #:	3842
ACTIVITY #:	APE20040003

SOURCE DESCRIPTION:

The Somerset Refinery (Somerset) is a petroleum refinery facility (SIC code 2911) which processes crude oil purchased from wells in Kentucky and Tennessee. The purchased crude oil is delivered by truck to the facility, as there are no pipeline, rail, or water deliveries to the facility. Somerset has a listed feed capacity of 5,500 barrels per day of operation. The purchased crude oil is segregated into high and low sulfur categories and stored in segregated oil feed tanks. The crude is processed in batches to produce low sulfur Diesel and No. 6 Fuel Oil. The crude contains suspended salt water that is removed and returned to an injection well for disposal. The raw gasoline is further processed by removing the sulfur and then increasing the aromatic content for octane enhancement. Various additives and dyes are added to most of the fuel products in order to comply with sales specifications and regulatory requirements.

PUBLIC AND U.S. EPA REVIEW:

On June 14, 2006, the public notice on availability of the draft permit and supporting material for comments by persons affected by the plant was published in *Commonwealth Journal* in Somerset, Kentucky. The public comment period expired 30 days from the date of publication.

Comment received
Comments were received from The Somerset Refinery, Inc. on July 13, 2006. Attachment A to this document lists the comments received and the Division's response to each comment. Minor changes were made to the permit as a result of the comments received, however, in no case were any emissions standards, or any monitoring, recordkeeping or reporting requirements relaxed. Please see Attachment A for a detailed explanation of the changes made to the permit. The U.S. EPA has 45 days to comment on this proposed permit.

ATTACHMENT A

Response to Comments

Comments on The Somerset Refinery, Inc. Draft Title V Air Quality Permit submitted by Rebecca T. Cash, P.E., of Linebach Funkhouser, Inc.

Title V Permit:

Page 2:

1. Emission point table – in the description of emission point 04, the word "emergencies" should be replaced with the word "malfunctions" in order to maintain consistency with the terms used Kentucky's administrative regulations.

   Division's Response:
   The word "emergencies" will be replaced with "malfunctions" as requested by the permittee.

2. Other corrections needed under the Description heading:
   - EP 01 – Remove "equipped with low NOx burners."
   - EP 23 – Remove "equipped with low NOx burners."
   - EP 24 – Remove "equipped with low NOx burners."
   - EP 25 – Remove "equipped with low NOx burners."
   - EP 26 – Remove "equipped with low NOx burners."

   Division's Response:
   The information was based on the application received on 7/28/05. The permittee has confirmed that the above listed emissions units are not equipped with low NOx burners. This change will be incorporated into the permit. Provide new DEP7007N forms for these units.

3. Additional changes needed for accuracy:

   - EP 35 – Change Construction Commenced Date from "1940" to "1984."

   Division's Response:
   The information was based on the application received on 7/28/05 on the DEP7007B form. The construction date of EP 35 will be changed from 1940 to 1984 as requested by the permittee. Provide a new DEP7007B and N form for this unit.

4.
   - EP 36 – Remove "1,540 barrels per day" under Capacity.
   - EP 37 – Remove "1,540 barrels per day" under Capacity.

Division's Response:
The information is a description, based on the application received on 7/28/05 on the DEP7007B form. Emission unit capacity needs to be listed under the description for the equipment listing. It is the basis for calculating the emission potential and based on information provided in the application. Please provide the correct rate and new DEP7007B and DEP7007N forms, if your application is incorrect. The permit was not changed.

Page 3:

5. Remove reference to 401 KAR 61:015, *Existing Indirect Heat Exchangers*. All indirect heat exchangers were installed after 1972.

Division's Response:
The permit and the regulation do not state, "installed". The referenced units commenced prior to the classification date of April 9, 1972. The reference to 401 KAR 61:015 is based on the operating permit O-84-124 for EPs 02, 22, 23, 24 and 25. The application for the O-84-124 permit does state that some units were used units. The facility has had the same limit for these units of 0.614 lb/mmBtu of PM and 3.476 lb/mmBtu of SO2 that have been in their operating permit for over 20 years. The permit was not changed.

6. General on Condition #2 – Emission Point EP 21 should have its emission limitation listed.

Division's Response:
Per conversation with Somerset Vice President, Jan Acre, the crude distillation heater (EP21) and the Kerosene Hydrotreater Heater (EP26) are indirect heat exchangers. Operating permit O-84-124 lists a limit that the fuel gas H2S content shall not exceed 0.10 gr/dscf, but does not list a PM or SO2 limit. The H2S limit is not from 401 KAR 59:015, but was taken from 40 CFR 60 Subpart J. If 401 KAR 59:015 is applicable, then the emission limitation will be based on the total rated heat input capacity of all the indirect heat exchangers at the facility at that time. A particulate matter and sulfur dioxide limit, based on 401 KAR 59:015 for a total heat input capacity of 35 mmBtu/hr in 1983, was added to the permit for theCrude Distillation Heater (EP21) and the Kerosene Hydrotreater Heater (EP26).

The identification for the group of units, previously identified as "Indirect Heat Exchangers", has been changed to "Indirect Heat Exchangers and Direct-fired Heat Exchangers".

The emission limits under 2.c) in the permit for EP26, EP56, EP57, and (2) indirect heaters for storage tank 187 were revised. 401 KAR 59:015 was not listed as an applicable regulation for EP26, Kerosene Hydrotreater Heater, in operating permit O-84-124. As stated above, the facility has stated that EP26 is an indirect heat exchanger and 401 KAR 59:015 is applicable. 401 KAR 59:015 is not an applicable regulation to the vacuum tower (EP56) and the modified hydrotreater catalyst unit (EP57,) because they are not indirect heat exchangers. The limit for the two (2) indirect heaters for storage tank 187 (EP S187) was lowered in the permit to 0.37 lb/mmBtu, instead of 0.56 lb/mmBtu, based on the total rated capacity of 55.9 mmBtu/hr.

7. Condition # 2(a) – Delete as 401 KAR 61:015 is not applicable. Change to: "Pursuant to 401 KAR 59:015, the particulate emission rate from the Crude Distillation Heater (EP02) shall not exceed 0.5200 lb/mmBtu."

   Division's Response:
   Refer to the response to #5 and #6.

8. Condition # 2(b) – In accordance with 401 KAR 59:015, the Particulate emission limit appears to be miscalculated. The number should be based on $0.9634*(13.4)^{-0.2364}$ and is equal to 0.5227. Change to: "Pursuant to 401 KAR 59:015, the particulate emission rate from the 400 HP Continental Boiler (EP01) shall not exceed 0.5227 lb/mmBtu."

   Division's Response:
   13.4 mmBtu/hr is not the total heat input capacity of all the indirect heat exchangers at the facility at that time. The correct heat input rating at the construction time of 400 HP Continental boilers (EP01) was 44.4 mmBtu/hr (including the heat input rating of EP01). Therefore, the correct particulate emission rate for EP01 is 0.33 lb/mmBtu. The permit was not changed.

9. Condition # 2(c) – Add Emission Points EP 21, EP 22, EP 23, EP24, EP 25, and EP 26.

   Division's Response:
   Refer to the response to #6 for EP 21, the crude distillation heater and EP 26, the kerosene hydrotreater heater.
   Refer to the response to #5 for EP 22, EP 23, EP 24, and EP 25.

10. Condition # 2(d) – Delete as 401 KAR 61:015 is not applicable. Change to: "Pursuant to 401 KAR 59:015, the sulfur dioxide emission rate from the 400 HP Continental Boiler (EP01) and Crude Distillation Heater (EP02) shall not exceed 2.66 lb/mmBtu."

    Division's Response:
    Refer to the response to #5 for EP 22, EP 23, EP 24, and EP 25. The sulfur dioxide emission rate for 400 HP Continental boiler has been added as 1.626 lb/mmBtu based on the total sourcewide heat input rating of 44.4 mmBtu/hr.

11. Condition # 2(e) – Add Emission Points EP 21, EP, 22, EP 23, EP24, EP 25, and EP 26.

    Division's Response:
    Refer to the response to #6 for EP 21, the crude distillation heater and EP 26, the kerosene hydrotreater heater.
    Refer to the response to #5 for EP 22, EP 23, EP 24, and EP 25. The permit was not changed.

Page 4:

12. Condition # 2(f) – Delete as 401 KAR 61:015 is not applicable.

    Division's Response:

Refer to the response to #5 for EP 02, EP 22, EP 23, EP 24, and EP 25. The permit was not changed.

13. Condition # 2(g) – Add Crude Distillation Heater (EP02).

Division's Response:
The opacity limit for EP 02 was listed under condition 2(f)[now 2(i)] in the permit. The opacity limit was not changed.

14. Condition # 2(h) – Add Emission Points EP 21, EP, 22, EP 23, EP24, EP 25, and EP 26.

Division's Response:
Refer to the response to #6 for EP 21, the crude distillation heater and EP 26, the kerosene hydrotreater heater.
Refer to the response to #5 for EP 22, EP 23, EP 24, and EP 25. The permit was not changed.

15. Condition # 2(i-k) – Edit and combine to read:
"Pursuant to 40 CFR 60.104(a)(1), each Indirect Heat Exchanger (EP 01-02, 04, 21-26, 35-37, 56-57, and S187) shall be fired with fuel gas from reforming of hydrotreated naphtha, or with natural gas, and shall not burn any fuel gas that contains hydrogen sulfide (H_2S) in excess of 230 mg/dscm (0.10gr/dscf)."

Division's Response:
Condition 2(i through k) was combined into one Condition 2(j) for each emission point as requested.

Page 5:

16. Compliance Demonstration Method (b) – AP-42 emission factor for SO_2 should be listed as "0.6 lbs SO_2 per million standard cubic feet" instead of 0.0006.

Division's Response:
SO2 emission factor will be revised to 0.6 lb/mmscf as requested.

17. Testing Requirements – Method 9 monitoring is not necessary since "Compliance with opacity limit is demonstrated when burning refinery fuel gas or natural gas" is previously stated in the Compliance Demonstration section of the permit.

Division's Response:
Testing Requirement 3(a) can be removed since the compliance with opacity is demonstrated when burning refinery fuel gas or natural gas as requested.

In addition, the Division has decided to remove the requirement 4.Specific Monitoring Requirements a)iii) requiring the results of the monthly ASTM analysis of refinery fuel gas heat content, since there is no regulation requiring this condition.

Page 8:

18. Flare - in the description section, the word "emergencies" should be replaced with the word "malfunctions" in order to maintain consistency with the terms used in Kentucky's administrative regulations.

    Division's Response:
    The word "emergencies" will be replaced with "malfunctions" as requested by the permittee.

19. Testing Requirements (b) – This language is not required since the flare is not subject to 401 KAR 60:005. 40 CFR 60.18 is required for sources utilizing control devices in order to comply with an applicable Part 60 or 61 performance standard.

    Division's Response:
    Although, the flare is not subject to 401 KAR 60:005, the permittee shall use methods referenced in 40 CFR 60.18 to determine the maximum velocity (dscf/s) and the maximum net heating value of the gas being combusted in the flare (Btu/dscf) for the purpose of determining the accurate emissions from the flare and compliance with the source-wide VOC limit. The permit was not changed as a result of this comment.

Page 10:

20. Emission point table – under the Product Stored heading for emission point 09 (tank I.D. #186), remove "Heavy gas oil (<1.0 psia)" and replace with "Raw Gasoline (Naphtha) <9.0 psia)."

    Division's Response:
    The information was based on the application received on 7/28/05 on form DEP7007J Form Section D Part 1. If the application was incorrect, the storage tank # 186 will be subject to NSPS, Subpart K requirements, similarly to storage tank 190. Submit a revised form DEP 7007J. The permit was changed to reflect the new vapor pressure.

21. Condition # 1(a) - Facility utilized a maximum processing rate of 5500 barrels per day of crude oil as a basis for the facility's emission calculations. Somerset requests that this limit supersede the limits placed in operating permit O-84-124.

    Division's Response:
    Source-wide emission limits and compliance demonstration methods are included in Section D of the permit. The state-only operating limit from O-84-124 in Section D of the permit has been removed.

Page 11:

22. Condition # 1(d) – Delete condition as Tanks # 186 and 190 were commenced prior to May 19, 1978.

Division's Response:
Tank #186 was installed in 1973 and tank #190 was installed in 1975; and the tanks have capacities greater than 1,067,000 gallons and 303,500 gallons, respectively, according to the DEP 7007J form in the application. Therefore, the date is after the classification date of April 9, 1972 and before July 24, 1984. 401 KAR 59:050 would be applicable if the capacity of each tank was less than 40,000 gallons, but they are not. Condition 1(d) pertains to requirements of 401 KAR 59:050, Section 3(3) which were determined to be applicable to storage tanks 186 and 190 in permit O-84-184. There may have been an error in the application for the O-84-184 permit, regarding capacities of the tanks, or the applicability for KAR 59:050 has changed in the regulations. The requirements from 401 KAR 59:050 were removed from the permit for Tank #186 and 190, as well as the other tanks in this group of emission units.

23. Conditions #1(e-f) – These conditions should be referenced for all storage tanks listed on page 10.

Division's Response:
401 KAR 59:050 is not applicable for any of these tanks, based on date of installation and the capacity of each unit. Refer to the response to #22.

Page 12:

24. Condition # 5(e) – The purpose and regulatory authority for this condition is unclear. While records are kept of production and throughput of the storage tanks, keeping records of the period of storage is difficult to maintain on a continuous throughput process. In addition, we do not understand the benefits of recording the true vapor pressure of these tanks during storage. The vapor pressure of the tanks is less than 1.5 psia and remains relatively constant.

Division's Response:
401 KAR 59:050 is not applicable for any of these tanks, based on date of installation and the capacity of each unit. Refer to the response to #22.

Page 14:

25. Applicable Regulation - These tanks were constructed prior to 1984, therefore should be permitted under 40 CFR 60.110 through 60.117. We recommend that these tanks be combined with the "Facility Storage Tanks I." For Applicable Regulations on page 10, change the last sentence under 401 KAR 60:005 to "each storage vessel listed in this section is an affected facility, but only Tank 190 and Tank 196 have applicable requirements." Tank 196 would have all the requirements of Tank 190 with the previously recommended changes for pages 10-12.

Division's Response:
Although, each storage tank (184, 187, 197, and 196) was constructed prior to 1984 but it was determined to be subject to the requirements of 40 CFR 60.110b through 60.117b because of the following:

Pursuant to Permit No. C-88-129, issued on July 25, 1988, storage tanks identified as 196 and 197 are subject to the requirements of 40 CFR Part 60, Subparts Kb. Were the tanks reconstructed or modified after July 23, 1984?

Pursuant to Permit No. S-97-087, issued on July 28, 1997, the permittee is required to comply with the requirements of Agreed Order DAQ-19141-106 for the storage tank identified as 184, with a storage capacity of 292,151 gallons. Such Agreed Order (and permit) requires the permittee to install and operate primary and secondary seals on tank 184, and to comply with the related requirements pursuant to 40 CFR Part 60, Subpart Kb.

Pursuant to Permit No. S-00-082, issued on June 15, 2000, the Division determined storage tank 187 to be subject to the requirements of 40 CFR 60, Subpart Kb.
The permit was not changed.

26. Change the Product Stored for Tank 30(197) from Heavy gas oil to Naphtha.

Division's Response:
The information was based on the application received on 7/28/05 on form DEP7007J Form Section D Part 1. Submit a revised form DEP 7007J. The permit has been revised to reflect the change in product and vapor pressure.

27. Delete pages 14-20 as the regulation is not applicable.

Division's Response:
Refer to the response to #25. The permit was not changed.

Page 21:

28. For the tanks listed in the table for Facility Storage Tanks III, the vapor pressure should be as follows:

- Tank 07 (182): 12 psia
- Tank 07 (191): 12 psia
- Tank 07 (193): 11 psia
- Tank 07 (194): 11 psia

Division's Response:
Vapor pressure of each tank will be revised as requested.

29. Applicable Regulations - These tanks were installed prior to 1972 and therefore, 401 KAR 59:050 is not applicable to the listed tanks. There are no applicable regulations to these tanks.

Division's Response:
Although the storage tanks 182, 191, 192, 193, and 194 were all constructed prior to 1972, the reason for including the requirements of 401 KAR 59:050 is that these storage tanks were determined to be subject to the rule in permit no O-84-184; therefore, the old requirements for these storage tanks were carried over into the Title V permit. There may have been an error in the application for the O-84-184 permit, regarding installation of the tanks, or the applicability for KAR 59:050 has changed in the regulations. The requirements from 401 KAR 59:050 will be removed from the permit for this group of emission units.

30. We request that these tanks be combined with those listed under Facility Storage Tanks IV, since there are no applicable regulations.

Division's Response:
The permit was revised, as requested.

31. Condition # 1(a) - Facility utilized a maximum processing rate of 5500 barrels per day of crude oil as a basis for the facility's emission calculations. We request that this limit supersede the limits placed in operating permit O-84-124.

Division's Response:
The reference to operating permit O-84-124 will be removed and the annual throughput limit for crude oil will be based on 5500 barrels per day (equivalent to 2,007,500 barrels per year) as requested.

32.

- Conditions #1(b-e) – Delete as these requirements are not applicable.
- Condition #5(b-d) - Delete as these requirements are not applicable.

Division's Response:
Refer to the response to #29 and 30.

Page 24:

33.

Facility Storage Tanks IV – Change the table as follows:

- Tank 10 (160) – vapor pressure: 11 psia
- Tank 10 (161) – vapor pressure: 11 psia
- Tank 17 (198) – Emission Unit Description: Horizontal Fixed Roof Tanks
- Tank 17 (199) – Emission Unit Description: Horizontal Fixed Roof Tanks

Division's Response:
The changes in vapor pressure and emission unit description can be made as requested. Referring to the response to Comment 29, no applicable regulations apply to the tanks in group III or IV from the draft permit, therefore they have been combined into one group III tanks in the proposed permit.

34. Condition # 1(a) - Facility utilized a maximum processing rate of 5500 barrels per day of crude oil as a basis for the facility's emission calculations. We request that this limit supersede the limits placed in operating permit O-84-124.

Division's Response:
The reference to operating permit O-84-124 will be removed and the annual throughput limit for crude oil will be based on 5500 barrels per day (equivalent to 2,007,500 barrels per year) as requested.

Page 25:

35. Condition # 5(a) – The purpose and regulatory authority for this condition is unclear. While records are kept of production and throughput of the storage tanks, keeping records of the period of storage is difficult to maintain on a continuous throughput process. In addition, we do not understand the benefits of recording the true vapor pressure of these tanks during storage. The vapor pressure of the tanks remains relatively constant.

Division's Response:
Condition 5(a) will be revised to "For each tank the permittee shall maintain a record of the liquid stored. Such record shall be provided to the Division upon request." The vopor pressure of each product stored is listed in the description for each tank.

Page 26:

36. Applicable Regulations: 40 CFR 60.500 is not applicable to the loading racks at Somerset Refinery. Subpart XX is only applicable to bulk gasoline terminals. Somerset Refinery does not meet the definition of a bulk gasoline terminal under 40 CFR 60.501.

Division's Response:
The description for emission point 06(06) has been revised to more accurately reflect the loading rack. The requirements of NSPS, Subpart XX will be removed from the permit since the source does not meet the definition of a bulk gasoline terminal under 40 CFR 60.501.

37. Condition # 1(b) - Facility utilized a maximum processing rate of 5500 barrels per day of crude oil as a basis for the facility's emission calculations. We request that this limit supersede the limits placed in operating permit O-84-124.

Division's Response:
The reference to operating permit O-84-124 will be removed and the annual throughput limit for crude oil will be based on 5500 barrels per day (equivalent to 2,007,500 barrels per year) as requested.

38. Condition # 1(c) – Not applicable.

Division's Response:
Condition 1(c) pertains to NSPS, Subpart XX requirements, which do not apply to this source and was removed.

Page 28:

39. Compliance Demonstration Method - Not applicable.

Division's Response:
Condition 1(c) pertains to NSPS, Subpart XX requirements, which do not apply to this source and was removed.

40. Condition # 3-5 – Not applicable.

Division's Response:
Conditions 3 through 5 will be deleted since they pertain to NSPS, Subpart XX requirements, except Conditions 5(f) and (g) which are still required for general record keeping of material throughput.

Page 46:

41. In the first line of the body of text, the word "Immediate" is not reasonable or practical since some amount of time would be needed to assign labor resources, and procure parts and tools. We recommend the word "Immediate" be changed to "Timely."

Division's Response:
The word "Immediate" will be replaced with "Timely" as requested.

CREDIBLE EVIDENCE:

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has not incorporated these provisions in its air quality regulations.